



SEQUENCE LISTING

<110> Naoyuki TANIGUCHI et al.

<120> ALPHA 1-6 FUCOSYLTRANSFERASE

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<140> 09/839,136

<141> 2001-04-23

<150> 09/442,629

<151> 1999-11-18

<150> 08/913,805

<151> 1998-01-07

<150> PCT/JP97/00171

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<211> 1728

<212> DNA

<213> Pig

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gcc tgg ggg acc ttg cta ttt tac ata ggt ggt cac ttg gta cga gat	96
Ala Trp Gly Thr Leu Leu Phe Tyr Ile Gly Gly His Leu Val Arg Asp	
20 25 30	
aat gac cac tct gat cac tct agc cga gaa ctg tcc aag att ttg gca	144
Asn Asp His Ser Asp His Ser Ser Arg Glu Leu Ser Lys Ile Leu Ala	
35 40 45	
aag ctg gaa cgc tta aaa caa caa aat gaa gac ttg agg aga atg gct	192
Lys Leu Glu Arg Leu Lys Gln Gln Asn Glu Asp Leu Arg Arg Met Ala	
50 55 60	
gga tct ctc cga ata cca gaa ggc ccc att gat cag ggg cca gct tca	240
Gly Ser Leu Arg Ile Pro Glu Gly Pro Ile Asp Gln Gly Pro Ala Ser	
65 70 75 80	
gga aga gtt cgt gct tta gaa gag caa ttt atg aag gcc aaa gaa cag	288

Gly	Arg	Val	Arg	Ala	Leu	Glu	Glu	Gln	Phe	Met	Lys	Ala	Lys	Glu	Gln	
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att	gaa	aat	tat	aag	aaa	caa	act	aaa	aat	ggg	cca	ggg	aag	gat	cat	336
Ile	Glu	Asn	Tyr	Lys	Lys	Gln	Thr	Lys	Asn	Gly	Pro	Gly	Lys	Asp	His	
			100					105					110			
gaa	atc	cta	agg	agg	agg	att	gaa	aat	gga	gct	aaa	gag	ctc	tgg	ttt	384
Glu	Ile	Leu	Arg	Arg	Arg	Ile	Glu	Asn	Gly	Ala	Lys	Glu	Leu	Trp	Phe	
		115					120					125				
ttt	cta	caa	agt	gag	ttg	aag	aaa	tta	aag	aat	tta	gaa	gga	aat	gaa	432
Phe	Leu	Gln	Ser	Glu	Leu	Lys	Lys	Leu	Lys	Asn	Leu	Glu	Gly	Asn	Glu	
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ctc	caa	aga	cat	gca	gat	gaa	ttt	cta	tca	gat	ttg	gga	cat	cat	gaa	480
Leu	Gln	Arg	His	Ala	Asp	Glu	Phe	Leu	Ser	Asp	Leu	Gly	His	His	Glu	
145					150					155					160	
agg	tct	ata	atg	acg	gat	cta	tac	tac	ctc	agt	caa	aca	gat	ggg	gca	528
Arg	Ser	Ile	Met	Thr	Asp	Leu	Tyr	Tyr	Leu	Ser	Gln	Thr	Asp	Gly	Ala	
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ggg	gat	tgg	cgt	gaa	aag	gag	gcc	aaa	gat	ctg	aca	gag	ctg	gtc	cag	576
Gly	Asp	Trp	Arg	Glu	Lys	Glu	Ala	Lys	Asp	Leu	Thr	Glu	Leu	Val	Gln	
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cgg	aga	ata	aca	tat	ctt	cag	aat	ccc	aag	gac	tgc	agc	aaa	gcc	aag	624
Arg	Arg	Ile	Thr	Tyr	Leu	Gln	Asn	Pro	Lys	Asp	Cys	Ser	Lys	Ala	Lys	
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Lys	Leu	Val	Cys	Asn	Ile	Asn	Lys	Gly	Cys	Gly	Tyr	Gly	Cys	Gln	Leu	
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His	His	Val	Val	Tyr	Cys	Phe	Met	Ile	Ala	Tyr	Gly	Thr	Gln	Arg	Thr	
225					230					235					240	
ctc	gcc	ttg	gaa	tct	cac	aat	tgg	cgc	tac	gct	act	ggg	gga	tgg	gaa	768
Leu	Ala	Leu	Glu	Ser	His	Asn	Trp	Arg	Tyr	Ala	Thr	Gly	Gly	Trp	Glu	
				245					250					255		
act	gtg	ttt	aga	cct	gta	agt	gag	acg	tgc	aca	gac	aga	tct	ggc	agc	816
Thr	Val	Phe	Arg	Pro	Val	Ser	Glu	Thr	Cys	Thr	Asp	Arg	Ser	Gly	Ser	
			260					265					270			
tcc	act	gga	cat	tgg	tca	ggg	gaa	gta	aag	gac	aaa	aat	gtt	cag	gtg	864
Ser	Thr	Gly	His	Trp	Ser	Gly	Glu	Val	Lys	Asp	Lys	Asn	Val	Gln	Val	
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gtt	gag	ctc	ccc	att	gta	gac	agt	gtt	cat	cct	cgt	cct	cca	tat	tta	912
Val	Glu	Leu	Pro	Ile	Val	Asp	Ser	Val	His	Pro	Arg	Pro	Pro	Tyr	Leu	
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ggt gat cct gca gtg tgg tgg gta tcc cag ttt gtc aag tac ttg att				1008
Gly Asp Pro Ala Val Trp Trp Val Ser Gln Phe Val Lys Tyr Leu Ile	325	330	335	
cgc cca caa ccc tgg ctg gaa aag gaa ata gaa gag gcc acc aag aag				1056
Arg Pro Gln Pro Trp Leu Glu Lys Glu Ile Glu Glu Ala Thr Lys Lys	340	345	350	
cta ggc ttc aaa cat cca gtt att gga gtc cat gtt aga cgc aca gac				1104
Leu Gly Phe Lys His Pro Val Ile Gly Val His Val Arg Arg Thr Asp	355	360	365	
aaa gtg gga gcg gaa gca gcc ttc cat ccc att gag gaa tac acg gtg				1152
Lys Val Gly Ala Glu Ala Ala Phe His Pro Ile Glu Glu Tyr Thr Val	370	375	380	
cac gtt gaa gaa gac ttt cag ctt ctt gct cgc aga atg caa gtg gat				1200
His Val Glu Glu Asp Phe Gln Leu Leu Ala Arg Arg Met Gln Val Asp	385	390	395	400
aaa aaa agg gtg tat ttg gcc aca gat gac cct gct ttg tta aaa gag				1248
Lys Lys Arg Val Tyr Leu Ala Thr Asp Asp Pro Ala Leu Leu Lys Glu	405	410	415	
gca aaa aca aag tac ccc agt tat gaa ttt att agt gat aac tct atc				1296
Ala Lys Thr Lys Tyr Pro Ser Tyr Glu Phe Ile Ser Asp Asn Ser Ile	420	425	430	
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Ser Trp Ser Ala Gly Leu His Asn Arg Tyr Thr Glu Asn Ser Leu Arg	435	440	445	
ggt gtg atc ctg gat ata cac ttt ctc tcc cag gca gac ttc cta gtg				1392
Gly Val Ile Leu Asp Ile His Phe Leu Ser Gln Ala Asp Phe Leu Val	450	455	460	
tgt act ttt tca tcg cag gtc tgt aga gtt gct tat gaa atc atg caa				1440
Cys Thr Phe Ser Ser Gln Val Cys Arg Val Ala Tyr Glu Ile Met Gln	465	470	475	480
gcg ctg cat cct gat gcc tct gcg aac ttc cgt tct ttg gat gac atc				1488
Ala Leu His Pro Asp Ala Ser Ala Asn Phe Arg Ser Leu Asp Asp Ile	485	490	495	
tac tat ttt gga ggc cca aat gcc cac aac caa att gcc att tat cct				1536
Tyr Tyr Phe Gly Gly Pro Asn Ala His Asn Gln Ile Ala Ile Tyr Pro	500	505	510	
cac caa cct cga act gaa gga gaa atc ccc atg gaa cct gga gat att				1584
His Gln Pro Arg Thr Glu Gly Glu Ile Pro Met Glu Pro Gly Asp Ile	515	520	525	
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Ile Gly Val Ala Gly Asn His Trp Asp Gly Tyr Pro Lys Gly Val Asn	530	535	540	

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Glu	Ser	Leu	Arg	Ile	Pro	Glu	Gly	Pro	Ile	Asp	Gln	Gly	Pro	Ala	Ser	
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Gly	Arg	Val	Arg	Ala	Leu	Glu	Glu	Gln	Phe	Met	Lys	Ala	Lys	Glu	Gln	
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Phe	Leu	Gln	Ser	Glu	Leu	Lys	Lys	Leu	Lys	Asn	Leu	Glu	Gly	Asn	Glu	
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Lys	Leu	Val	Cys	Asn	Ile	Asn	Lys	Gly	Cys	Gly	Tyr	Gly	Cys	Gln	Leu	
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His	His	Val	Val	Tyr	Cys	Phe	Met	Ile	Ala	Tyr	Gly	Thr	Gln	Arg	Thr	
225				230						235				240		
Leu	Ala	Leu	Glu	Ser	His	Asn	Trp	Arg	Tyr	Ala	Thr	Gly	Gly	Trp	Glu	
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Thr	Val	Phe	Arg	Pro	Val	Ser	Glu	Thr	Cys	Thr	Asp	Arg	Ser	Gly	Ser	
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Ser	Thr	Gly	His	Trp	Ser	Gly	Glu	Val	Lys	Asp	Lys	Asn	Val	Gln	Val	
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Gly	Asp	Pro	Ala	Val	Trp	Trp	Val	Ser	Gln	Phe	Val	Lys	Tyr	Leu	Ile
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Arg	Pro	Gln	Pro	Trp	Leu	Glu	Lys	Glu	Ile	Glu	Glu	Ala	Thr	Lys	Lys
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His	Val	Glu	Glu	Asp	Phe	Gln	Leu	Leu	Ala	Arg	Arg	Met	Gln	Val	Asp
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Lys	Lys	Arg	Val	Tyr	Leu	Ala	Thr	Asp	Asp	Pro	Ala	Leu	Leu	Lys	Glu
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Ala	Lys	Thr	Lys	Tyr	Pro	Ser	Tyr	Glu	Phe	Ile	Ser	Asp	Asn	Ser	Ile
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Cys	Thr	Phe	Ser	Ser	Gln	Val	Cys	Arg	Val	Ala	Tyr	Glu	Ile	Met	Gln
465					470					475					480
Ala	Leu	His	Pro	Asp	Ala	Ser	Ala	Asn	Phe	Arg	Ser	Leu	Asp	Asp	Ile
			485					490						495	
Tyr	Tyr	Phe	Gly	Gly	Pro	Asn	Ala	His	Asn	Gln	Ile	Ala	Ile	Tyr	Pro
			500					505					510		
His	Gln	Pro	Arg	Thr	Glu	Gly	Glu	Ile	Pro	Met	Glu	Pro	Gly	Asp	Ile
		515					520						525		
Ile	Gly	Val	Ala	Gly	Asn	His	Trp	Asp	Gly	Tyr	Pro	Lys	Gly	Val	Asn
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Arg	Lys	Leu	Gly	Arg	Thr	Gly	Leu	Tyr	Pro	Ser	Tyr	Lys	Val	Arg	Glu
545					550					555					560
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 Arg Ile Glu Asn Gly Ala Lys Glu Leu Gln
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 ctaactagaa acagagttac aatgttttca attctttgag ctccaggact ccaggggaagt 180
 gagttgaaaa tctgaaa atg cgg cca tgg act ggt tcc tgg cgt tgg att 230
 Met Arg Pro Trp Thr Gly Ser Trp Arg Trp Ile
 1 5 10
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 Met Leu Ile Leu Phe Ala Trp Gly Thr Leu Leu Phe Tyr Ile Gly Gly
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 His Leu Val Arg Asp Asn Asp His Pro Asp His Ser Ser Arg Glu Leu
 30 35 40
 tcc aag att ctg gca aag ctt gaa cgc tta aaa cag cag aat gaa gac 374
 Ser Lys Ile Leu Ala Lys Leu Glu Arg Leu Lys Gln Gln Asn Glu Asp
 45 50 55
 ttg agg cga atg gcc gaa tct ctc cgg ata cca gaa ggc cct att gat 422
 Leu Arg Arg Met Ala Glu Ser Leu Arg Ile Pro Glu Gly Pro Ile Asp
 60 65 70 75
 cag ggg cca gct ata gga aga gta cgc gtt tta gaa gag cag ctt gtt 470
 Gln Gly Pro Ala Ile Gly Arg Val Arg Val Leu Glu Glu Gln Leu Val
 80 85 90
 aag gcc aaa gaa cag att gaa aat tac aag aaa cag acc aga aat ggt 518
 Lys Ala Lys Glu Gln Ile Glu Asn Tyr Lys Lys Gln Thr Arg Asn Gly
 95 100 105
 ctg ggg aag gat cat gaa atc ctg agg agg agg att gaa aat gga gct 566
 Leu Gly Lys Asp His Glu Ile Leu Arg Arg Arg Ile Glu Asn Gly Ala
 110 115 120

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Lys Glu Leu Trp Phe Phe Leu Gln Ser Glu Leu Lys Lys Leu Lys Asn	
125 130 135	
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Leu Glu Gly Asn Glu Leu Gln Arg His Ala Asp Glu Phe Leu Leu Asp	
140 145 150 155	
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Leu Gly His His Glu Arg Ser Ile Met Thr Asp Leu Tyr Tyr Leu Ser	
160 165 170	
cag aca gat gga gca ggt gat tgg cgg gaa aaa gag gcc aaa gat ctg	758
Gln Thr Asp Gly Ala Gly Asp Trp Arg Glu Lys Glu Ala Lys Asp Leu	
175 180 185	
aca gaa ctg gtt cag cgg aga ata aca tat ctt cag aat ccc aag gac	806
Thr Glu Leu Val Gln Arg Arg Ile Thr Tyr Leu Gln Asn Pro Lys Asp	
190 195 200	
tgc agc aaa gcc aaa aag ctg gtg tgt aat atc aac aaa ggc tgt ggc	854
Cys Ser Lys Ala Lys Lys Leu Val Cys Asn Ile Asn Lys Gly Cys Gly	
205 210 215	
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Tyr Gly Cys Gln Leu His His Val Val Tyr Cys Phe Met Ile Ala Tyr	
220 225 230 235	
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Gly Thr Gln Arg Thr Leu Ile Leu Glu Ser Gln Asn Trp Arg Tyr Ala	
240 245 250	
act ggt gga tgg gag act gta ttt agg cct gta agt gag aca tgc aca	998
Thr Gly Gly Trp Glu Thr Val Phe Arg Pro Val Ser Glu Thr Cys Thr	
255 260 265	
gac aga tct ggc atc tcc act gga cac tgg tca ggt gaa gtg aag gac	1046
Asp Arg Ser Gly Ile Ser Thr Gly His Trp Ser Gly Glu Val Lys Asp	
270 275 280	
aaa aat gtt caa gtg gtc gag ctt ccc att gta gac agt ctt cat ccc	1094
Lys Asn Val Gln Val Val Glu Leu Pro Ile Val Asp Ser Leu His Pro	
285 290 295	
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Arg Pro Pro Tyr Leu Pro Leu Ala Val Pro Glu Asp Leu Ala Asp Arg	
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Leu Val Arg Val His Gly Asp Pro Ala Val Trp Trp Val Ser Gln Phe	
320 325 330	
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Val Lys Tyr Leu Ile Arg Pro Gln Pro Trp Leu Glu Lys Glu Ile Glu	
335 340 345	
gaa gcc acc aag aag ctt ggc ttc aaa cat cca gtt att gga gtc cat	1286

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575

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<210> 10
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<212> PRT
<213> Homo sapiens

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Asn Asp His Pro Asp His Ser Ser Arg Glu Leu Ser Lys Ile Leu Ala
35 40 45
Lys Leu Glu Arg Leu Lys Gln Gln Asn Glu Asp Leu Arg Arg Met Ala
50 55 60
Glu Ser Leu Arg Ile Pro Glu Gly Pro Ile Asp Gln Gly Pro Ala Ile
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Gly Arg Val Arg Val Leu Glu Glu Gln Leu Val Lys Ala Lys Glu Gln
85 90 95
Ile Glu Asn Tyr Lys Lys Gln Thr Arg Asn Gly Leu Gly Lys Asp His
100 105 110
Glu Ile Leu Arg Arg Arg Ile Glu Asn Gly Ala Lys Glu Leu Trp Phe
115 120 125
Phe Leu Gln Ser Glu Leu Lys Lys Leu Lys Asn Leu Glu Gly Asn Glu
130 135 140
Leu Gln Arg His Ala Asp Glu Phe Leu Leu Asp Leu Gly His His Glu
145 150 155 160
Arg Ser Ile Met Thr Asp Leu Tyr Tyr Leu Ser Gln Thr Asp Gly Ala
165 170 175
Gly Asp Trp Arg Glu Lys Glu Ala Lys Asp Leu Thr Glu Leu Val Gln
180 185 190
Arg Arg Ile Thr Tyr Leu Gln Asn Pro Lys Asp Cys Ser Lys Ala Lys
195 200 205
Lys Leu Val Cys Asn Ile Asn Lys Gly Cys Gly Tyr Gly Cys Gln Leu
210 215 220
His His Val Val Tyr Cys Phe Met Ile Ala Tyr Gly Thr Gln Arg Thr
225 230 235 240
Leu Ile Leu Glu Ser Gln Asn Trp Arg Tyr Ala Thr Gly Gly Trp Glu
245 250 255
Thr Val Phe Arg Pro Val Ser Glu Thr Cys Thr Asp Arg Ser Gly Ile
260 265 270
Ser Thr Gly His Trp Ser Gly Glu Val Lys Asp Lys Asn Val Gln Val
275 280 285
Val Glu Leu Pro Ile Val Asp Ser Leu His Pro Arg Pro Pro Tyr Leu
290 295 300
Pro Leu Ala Val Pro Glu Asp Leu Ala Asp Arg Leu Val Arg Val His
305 310 315 320
Gly Asp Pro Ala Val Trp Trp Val Ser Gln Phe Val Lys Tyr Leu Ile
325 330 335
Arg Pro Gln Pro Trp Leu Glu Lys Glu Ile Glu Glu Ala Thr Lys Lys
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